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RECORD OF ORAL HEARING
UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte J. RICHARD AYLWARD, HILMAR LEHNERT,
and ROBERT P. PARKER

Appeal 2007-3678
Application 09/735,123
Technology Center 2600

Oral Hearing Held: November 14, 2007

Before KENNETH W. HAIRSTON, LANCE LEONARD BARRY, and
ST. JOHN COURTENAY, *Administrative Patent Judges*.

ON BEHALF OF THE APPELLANTS:

Charles Hicken, Esquire
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225 Franklin Street
Boston, Massachusetts 02110

The above-entitled matter came on for hearing on Wednesday,
November 14, 2007, commencing at 9:41 a.m., at the U.S. Patent and
Trademark Office, 600 Dulany Street, 9th Floor, Hearing Room A,
Alexandria, Virginia, before Jan M. Jablonsky, Notary Public.

1 P R O C E E D I N G S

2 JUDGE HAIRSTON: Good morning. How are you today?

3 MR. HICKEN: Good morning.

4 Your Honors, may it please the Board, this is an appeal from the final
5rejection of claims to audio signal processing system, first under Section 112
6for failing to provide written description of what is regarded as a constant
7relative phase shifting. Then, claims 1 through 17, 20, 22 and 23 are a
8combination of three references: Robinson, Griesinger and Waller. And
9then claim 1 is additionally over a quaternary reference, Gusam.

10 In connection with the written description, I think one of the problems
11here is that it has not been understood that when we're talking about a
12constant relative phase, we're talking about a constant relative phase
13between the two channels, so that on an absolute basis, channel A and
14channel B would change as a function of frequency, but over the specified
15frequency range set forth in the claims from about 20 to 500 hertz, why that
16remains constant.

17 And there is a specific example in the specification. I think it's in figs.
186 and 7A especially shows the constant relative phase of 98 degrees, which
19is what we are trying to accomplish with the system. Now, if you want to
20understand what is happening with this particular invention, if you have, for
21example, a base spectral component that's in phase in particular frequency,
22then you are going to get a peak at that particular frequency. If you happen
23to have spectral components that are out of phase, you are going to get a dip
24at that particular frequency by arranging it in the preferred arrangement
25where they are relatively displaced by 90 degrees. Then, it doesn't make any

1difference. You are always going to get within that frequency range,
2something like about a 3db boost, so you're going to basically have uniform
3response in that range.

4 JUDGE COURTENAY: Is that the purpose of your system, to
5basically boost the base response by 3db?

6 MR. HICKEN: It's to have it uniform, Your Honor.

7 JUDGE COURTENAY: When you say uniform, are you talking
8about across the entire audio spectrum from 20 hertz to 20 hertz?

9 MR. HICKEN: Well, eventually it would. But in connection with
10this particular invention as claimed in the claims in both the method and the
11apparatus claims it's limited to about 20 to 500 to the base; and, also the
12constant phase angle difference is limited to between 60 and 120 degrees.
13You preferably want to get it at 90 degrees, but you get a number of the
14benefits if you have it within 60 and 120.

15 JUDGE COURTENAY: So your claim 1, to be clear, you have two
16channels of audio. So, you've got two speakers and these are full frequency
17response speakers. And you have tweeters and woofers. And you just shift
18the base frequencies 90 degrees with respect to the left side and the right
19side, just for the frequency range from 20 hertz to 500 hertz.

20 MR. HICKEN: Yes, Your Honor, that is correct.

21 And now I think the problem that the examiner has had is that I don't
22think that he has understood.

23 JUDGE COURTENAY: The Giesinger reference at the top of
24column 2, they appear to be doing the same thing. They have a phase

1difference of 90 degrees in the low frequency region. So, can you
2distinguish your claim from that reference?

3 MR. HICKEN: Yeah, except the difference is that is what Griesinger
4shows is he is concerned with room resonances and so on and the like. And
5what Griesinger does is he sends one of the signals that phase-shifted to one
6speaker, and he sends the other signal that's shifted by 90 degrees to the
7other speaker. And what we would claim, what we would be doing is you
8apply the same common bay signal would be to go into both speakers, and
9that's not suggested or made obvious by any of your references.

10 JUDGE COURTENAY: Okay. So you are taking the lower portion
11of the audio frequency spectrum from 20 hertz to 500 hertz, mixing it
12together to a mono signal, and the two channels are 90 degrees out of phase.
13You mix them and you send out mono signal to both the left and the right
14speakers.

15 MR. HICKEN: That is correct, Your Honor. You understand it is a
16difference with Griesinger, and none of the other references show it. And I
17think you've got it and if there are no further questions --

18 JUDGE BARRY: Well, counsel, you pointed now to figure 7A, but
19the examiner has been relying on figure 5A, where the shift difference is
20shown as element 80.

21 MR. HICKEN: Yes.

22 JUDGE BARRY: Now, that doesn't appear constant to me.

23 MR. HICKEN: It isn't, Your Honor. And that's an example of
24something that one might call shall we say imperfectly practicing the
25patented invention. And that is not claimed. That is correct, but if you look

1at the circuit 6 and what is happening in fig. 7A, we're talking about a
2constant relative phase shift over that frequency range. So that's what the
3claims are limited to, and then you take the common bay signal and you
4apply it to all your speakers.

5 As a practical matter, what we like to do is we have an Acoustamass
6system where we have the acoustamass enclosure reproduces low
7frequencies and usually we have something like cube speakers that will
8reproduce the higher frequencies. Because one of the things that happens is
9the lower frequencies are generally non-directional. So, you can take that
10acoustamass enclosure and hide it anywhere, and then you'll still get your
11stereo effect or your surround effect from the cube speakers while still
12getting a nice balance bay signal.

13 JUDGE BARRY: All right, counsel. When I look at figure 7A,
14though, I don't see a constant as you claim. I see something that's perhaps
15substantially constant, but I don't see a constant shift of 90 degrees.

16 MR. HICKEN: It is within an engineering approximation, I think it is
17within 90 degrees for a constant. I think it's exactly 90 degrees at 20 and
18exactly 90 degrees at 500, maybe, 3, 4, 5, something like that in between.
19But I think we need to interpret claims from an engineering standpoint.
20What would a person of ordinary skill interpret it to mean, and that's an
21example of you wouldn't be able to hear any difference between that and if it
22happened to be exactly 90.

23 We had I think the same type of a situation when we were litigating
24the Bose loudspeaker patent where we had for a port analytical cross-section
25for the port that resulted in getting rid of noise; and, contention was made

1there was some little tiny dip or some such thing like that in the accused
2structure. It was just not accepted by either District Court or the Court of
3Appeals, or the Supreme Court which did refuse to hear the case.

4 JUDGE BARRY: Okay, but if that was the case then, why when you
5only turn to the art rejection, why do you argue the difference is that the
6claim is substantially constant as opposed to constant? The written
7description we're talking about the claim limitation saying the shifting is
8constant.

9 MR. HICKEN: Yes.

10 JUDGE BARRY: When you get to the art rejection, you're arguing
11that the shifting is substantially constant. Why did you introduce that
12adverb?

13 MR. HICKEN: It should have just said constant, I think.

14 JUDGE BARRY: Okay. Now, that said, with the primary reference,
15Robinson, if we look at figure 2 of Robinson we see the phase shift.

16 MR. HICKEN: Yes. It's a delay network there.

17 JUDGE COURTENAY: Right.

18 JUDGE BARRY: Why isn't that constant within an engineering
19understanding where an engineering understanding allows some sort of
20variation?

21 MR. HICKEN: Because, well for one, we're talking about constant
22relative phase. We're also talking in the claim is limited between 60 and 120
23degrees, and that's clearly outside of that. And I think the examiner
24recognized that.

1 JUDGE BARRY: Where in your brief did you argue the 60 to 120-
2degree limitation for the anticipation rejection? I just want to be able to tag
3that.

4 MR. HICKEN: Well, it is certain there in the claims. Now, let me
5see. I think it's fair enough when we quote from the examiner's rejection on
6page 5 of our brief where he says Robinson is not specified that the
7combined bass frequency signal with a range of phase shifting being
8between about 60 degrees and 120 degrees. So the examiner recognizes, and
9we quote from the examiner in our brief.

10 JUDGE BARRY: But I don't understand that. How do you reconcile
11a constant phase shift with a phase shift that varies between 60 and 120
12degrees?

13 MR. HICKEN: That it's the constant angle is between 60 and 120, but
14preferably 90. But if you go as low as 60 or as high as 120, you'll get some
15of the effects of the invention, but it won't be as good if you keep it at 90.

16 JUDGE BARRY: Okay. So constant is if we interpret in terms of the
17claim as a whole, constant means between 60 and 120 degrees?

18 MR. HICKEN: It means that the constant angle for your circuitry has
19to be between 60 and 120 in the broader claims.

20 JUDGE HAIRSTON: Okay.

21 MR. HICKEN: Yeah, but it still has to be constant. It won't be as
22good if you're at 60 as at 90.

23 JUDGE COURTENAY: I understand.

24 JUDGE HAIRSTON: I understand.

1 JUDGE COURTENAY: At 75 degrees the circuit stays constant at a
2phase shift of 75 degrees.

3 MR. HICKEN: Yes, Your Honor.

4 JUDGE HAIRSTON: Okay. Got it.

5 JUDGE COURTENAY: This is a surround-sound application. We
6can use your dependent claims here: Dolby 5.1 or something similar; or no
7comment?

8 MR. HICKEN: I think are especially valuable.

9 JUDGE HAIRSTON: Any other questions?

10 MR. HICKEN: Thank you, no. That's it.

11 JUDGE COURTENAY: Thank you.

12 [The hearing was concluded at 9:56 a.m.]

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